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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,139	09/17/2003	Norbert Ebel	948-001.002	7192

4955 7590 05/22/2006

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EXAMINER

CHIEM, DINH D

ART UNIT	PAPER NUMBER
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2883

DATE MAILED: 05/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/667,139	EBEL, NORBERT	
	<b>Examiner</b>	<b>Art Unit</b>	
	Erin D. Chiem	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 8,9,15 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7,10-14 and 17-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

This office action is in response to the request for continuing examination filed on March 6, 2006. Claims 17-20 are new therefore, claims 1-20 are pending.

#### *Claim Objections*

Claim 1 is objected to because of the following informalities: recitations of *—them—* and *—they—* are unclear as to which plurality of components applicant is referring to. Appropriate correction is required. For the purpose of examination, the examiner shall consider the third person pronouns are referring to the conducting tracks.

Claims 10-14 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 10 -14 are exactly the same as claims 3-7.

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

JPJ  
5-15-06  
Claims 1-7, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Althaus et al. (US 6,422,766 B1 hereinafter "Althaus") in view of Kluitmans et al. (US 5,065,226 hereinafter "Kluitmans") and Amano et al. (US 6,222,967 B1 "Amano" hereinafter).

Regarding claims 1, 2, 7, 14, and 17 Althaus teaches a device for sending or receiving optical signals wherein an opto-electrical transducer (laser chip 12), together with an associated glass fiber (23) are arranged on a common support characterized in that

- The support is a circuit board (227'); see Fig. 12 comprising different multiple layers of insulating material (col. 4, lines 29-30) and intermediate layers of metal (conductor tracks), with a recess (visible as white open space in Fig. 13) formed therein containing an opening covered by a lid (329), wherein the lid is made of metal (col. 8, line 15-16), and a bottom on which conductor tracks, configured as microstrips, on the RF conductor track carrier (327B) (col. 12, lines 37-40).
- The transducer (12) is entirely located in the recess and is connected to the conducting tracks,
- The glass fiber exits from the recess through an opening in the circuit board, and
- An electrically active shield is installed around the circuit board (250).

Regarding claim 16, a Peltier element (211) is located on the bottom of the recess on which heats up the conductor track carrier.

However, Althaus does not explicitly teach that the conductor tracks are impedance-matched as recited in claims 1, 2, and 7. Furthermore, Althaus does not explicitly teach the recess being formed integrally with the substrate.

Kluitmans teaches a laser diode module that comprises of microstrips formed on the bottom of the module (Fig. 3; GT<sub>1</sub> and GT<sub>2</sub>) that are coupled to a coaxial transmission line at matching impedance (col. 9, lines 35-39) for the purpose of maximizing power transfer from one electrical component to another.

Amano discloses a packaging platform for an optical module that uses injection molding or transfer molding techniques (col. 4, line 25-27) for the purpose of simplifying manufacturing steps.

Since Althaus, Kluitmans and Amano are both from the same field of endeavor, the purpose disclosed by Kluitmans and Amano would have been recognized in the pertinent art of Althaus.

**The motivation** for impedance matching is for to maximize transfer of power between two or more electronic components. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to match the impedance by providing a high voltage conductor with a large resistor and a low voltage conductor with a low resistor. Furthermore, as clearly shown by Althaus and Kluitmans that a recess is used to house the optoelectronic components as well as the ferrule for coupling the transducer with an optical fiber. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the recess integrally as disclosed by Amano by injection molding or transfer molding. **The motivation** for integrally form the recess is to reduce manufacturing labor; thus reducing manufacturing cost.

Regarding claims 3-4, all three references disclose providing a metal plate as a cover Althaus (col. 1, line 25), Kluitmans (col. 5, line 25), Amano (col. 23, line 49).

Regarding claims 5, 6 and 12, Althaus discloses at least some of the conducting tracks protrude laterally from the recess (col. 12, lines 40-41) to the surrounding edge areas of the circuit board (shown in Fig. 11B as the small rectangles on the peripheral) that extend to a common surface on the inside of the circuit board where they respectively end on a contact surface,

Regarding claims 7, 18 and 19, Kluitmans further describe the extension of the microstrips through the coaxial transmission line to the external module (col. 9, lines 59-62). In order for the connection to be in a reflection-free manner, the inside diameter of the feedthrough is chosen such that the characteristic impedance of a coaxial transmission line is equal to that of the external microstrip. Furthermore, the ratio between the inside diameter of the outer guide of the coaxial transmission line and the outside diameter of the inner guide, with a given dielectric constant of the medium between the guides, the characteristic impedance of the coaxial transmission line can be matched to that of the microstrip line (col. 9, lines 33-49). Furthermore, in Fig. 5, the elements are positioned on the conducting tracks in a relatively planar configuration. The motivation for using microstrips through coaxial transmission line to connector to the laser diode is to reduce the influence of the inductance of guide pin on the matching of the laser diode module to the characteristic impedance of the external transmission; thus improving power transfer between the microstrips and the laser diode.

JKA  
5-15-06

Regarding claims 17 and 20 Kluitmans discloses that it is known in various application to provide a thermal contact surface below the laser diode such that the thermal contact surface thermoconductively contact to the base surface and lead the heat away from the laser diode (Col. 3, line 15-25). The motivation for providing a thermal contact surface to lead heat away from

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the laser diode is to prevent the optical module from over heating and wherein the module may contain elements that will break down due to the high thermal energy produced by the laser diode.

*Response to Arguments*

Applicant's arguments filed March 6, 2006 have been fully considered but they are not persuasive.

Applicant's only substantial arguments are:

- Neither Althaus nor Kluitmans discloses the recess as being integrally formed.

Examiner's response is as follows:

- Examiner addressed the amended limitation with Amano's reference, see above rejection.

Please note, applicant's traversal to Kluitmans reference fails to disclose microstrip line as recited at column 9, lines 33-49 is incomplete because applicant did not provide any argument, but mere allegation. Although Kluitmans clearly discloses such teaching at the citation, the examiner respectfully points applicant to Fig. 3 and the corresponding disclosure for improved clarity regarding the microstrip. Furthermore, the examiner respectfully reminds applicant that the in text citations are provided for applicant's convenience, but does not limit the scope of the reference applied in the rejection to the in text citations only. The references applied as prior art in this office action is incorporated in full disclosure and applicant should consider the prior art in full disclosure and not only the in text citation.

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*Contact Information*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Erin D Chiem  
Examiner  
Art Unit 2883



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